

REMARKS

The reconsideration of the present application, as amended, is respectfully requested.

Claims 1-12, as amended, remain in the present application, of which claims 1, 8 and 9 are independent claims. Claims 16-18 have been withdrawn from consideration, but are nevertheless each being amended in view of applicant's traversal of the restriction requirement. The amendments being made to Claims 1-12 and 16-18 are each fully supported by applicant's original disclosure, and none of amended Claims 1-12 and 16-18 are drawn to new matter.

The Examiner has objected to the drawings under 37 C.F.R. § 1.83(a) for the reason that certain limitations of Claim 15 are allegedly not shown by the present drawings. The Examiner's grounds for this rejection are now moot as a result of the cancellation of Claim 15 without prejudice.

The Examiner has issued a restriction requirement as between Invention I, (Claims 1-12, 15) and Invention II, (Claims 16-18), for the reasons that newly added claims of Invention II are allegedly independent or distinct from Inventions I, as originally claimed. Based on this restriction requirement, the Examiner has withdrawn Claims 16-18 from consideration. Applicant hereby traverses the restriction requirement and the withdrawal of Claims 16-18 of Invention II from consideration. For reasons explained below, Invention II is not independent or distinct from Invention I, and, therefore, Claims 16-18 should be examined together with the Claims 1-12 of Invention I.

Inventions I and II do not have separate utility since the recited elements of Claims 16-18, as amended, are essentially the same as those recited in Claims 1-12. More

specifically, the recitation in amended Claim 16 of “converting, based on an input profile, an input-device-dependent color image signal to an input-device-independent color image signal which depends on an input-side observation condition,” is very similar to what is recited in the first subparagraph of amended Claim 5. The recitation in amended Claim 16 of “converting, using a conversion condition according to a standard white point of an input-side observation condition, the input-device-independent color image signal, which depends on the input-side observation condition, to an input-device-independent color signal composed of a red component, a green component, and a blue component, which depends on the input-side observation condition,” is essentially the same as the combined recitations of the third element of amended Claim 1, and of amended Claims 2 and 3. The recited element of amended Claim 16 of “correcting, using a non-linear model according to the input-side observation condition and an output-side observation condition, the input-device-independent color image signal, which is dependent on the input-side observation condition, to generate a color signal image according to the output-side observation condition,” is essentially the same as what is recited in amended Claim 12. In addition, the recited element of Claim 16 of “converting, based on an output profile, the color image signal according to the output-side observation condition to an output-device-dependent color image signal,” is essentially the same as the combined recitations of the third element of amended Claim 1 and of amended Claim 7. The recited element in Claim 16 of “outputting the color image signal,” is inherent in which is recited in amended Claims 1-12, since the object of the claimed method is color matching as between an input color image signal received at the input side and a color image signal provided at the output side. The recited elements of Claim 16 of “determining whether or not the output-device-

dependent color signal represents substantially achromatic color by determining whether or not the red component, the green component and the blue component, comprising the color signal, are approximately equal,” is essentially the same as the combined recitations in amended Claims 3 and 10, since it is well known that the definition of “achromatic color,” in RGB color space means a color in which the primary color components of red, green and blue are approximately equal. Finally, the recited element in Claim 16 of “wherein, when it is determined in said determining step that the color signal represents substantially achromatic color, correcting the color image signal according to the output-side observation condition to represent substantially achromatic color and execute said converting step based on the output profile,” is essentially the same as the combined recitations of the last element of Claim 1 and of Claim 7. For these reasons, amended Claim 16 is not directed to an invention which is independent or distinct from the subject matter claimed in amended Claims 1-12.

Amended Claim 17 depends from amended Claim 16. The recitation in amended Claim 17 of “wherein, whether or not to execute said correcting step to generate a color image signal according to the output-side observation condition which represents the achromatic color depends on information acquired from the input profile and the output profile,” is essentially the same as the combined recitations of second subparagraph of amended Claim 5 and of amended Claim 7 with the exception of whether the correction step is executed depending on information acquired from the output profile. However, the requirement does not make the method defined by amended Claim 17 separately usable. Therefore, amended Claim 17 is also not directed to an invention which is independent or distinct from the subject matter claimed in amended Claims 1-12.

Amended Claim 18 is a recording medium claim counterpart of amended method Claim 16 and has very similar recitations to those of its method claim counterpart, and for that reason also does not have separate utility. Therefore, amended Claim 18 is also not independent or distinct from the subject matter claimed in Claims 1-12, as amended.

For these reasons, applicant respectfully request that the restriction requirement be withdrawn and that amended Claims 16-18 be considered together with amended Claims 1-12.

Claims 1-12 stand rejected under 35 U.S.C. § 102(b), as being allegedly anticipated by U.S. Patent No. 5,446,476 to Kouzaki (hereinafter “Kouzaki”). Kouzaki discloses a color image forming apparatus having input means for inputting conditions of various “factors,” which, according to Kouzaki, determine the impression of a color image on an observer. These factors are: (I) the lighting condition under which the image is to be observed; (ii) the geographical region where the image is to be observed; (iii) the color of the eyes of the observer; (iv) the season and date during which observation of the image is to take place.

The apparatus taught by Kouzaki includes adjusting means for adjusting up to six parameters, which are used by an image processing unit of the Kouzaki apparatus in converting input color image data into print data used for color image formation. Once the operator selects the lighting condition in which the reproduced color image is to be observed, as one of the parameters, the image processing unit proceeds to convert input image data into print data to form a color image which will make the most favorable impression under the selected lighting condition to an observer at a selected geographical

location, having a selected color of eyes, in a selected season and on a selected date. The corrections and adjustments of the input image data made by the image processing unit to suit the selected lighting condition are as follows: 1) a shading correction; 2) a reflectance-density conversion correction; 3) adjustment of the ratio of under color toner removal (UCR) to the black toner addition (BP); 4) color balance correction; and 5) a γ correction. Each of the foregoing corrections and adjustments is implemented by using corresponding correction or adjustment data stored in the respective read-only memory (ROM), and could result in a change in color and/or chromaticity as between input image data and the print data used to form the image.

With respect to correcting chromaticity, Kouzaki teaches a Black Generating Section 84 in the image processing apparatus, as shown in Fig. 10 and described in col. 6, lines 6-52 of Kouzaki, with references to Figs. 11, 12, 13a and 13b of that reference. In forming the printed image, toners of 4 colors, i.e. yellow (Y), magenta (M), cyan (C) and black (Bk) are used. Chromaticity of the formed image is influenced by the ratio of the total amount of reduced Y, M and C toners, referred to as under color removal (UCR), to the amount of added Bk toner (BP). The black generating section 84 of the Kouzaki apparatus provides for adjustment of the ratio UCR/BP (%). The relationship of UCR/BP to the chromaticity of the formed image is illustrated in Fig. 11 of Kouzaki.

Also depicted Fig. 10 is an Achromatic/Chromatic Color Judging Section 95 which distinguishes between an achromatic color and a chromatic color based on the RGB image data after the shading correction. The chromaticity is corrected by UCR/BP correction data stored in a UCR/BP control ROM 96. The UCR/BP correction data are represented graphically in Fig. 12 of Kouzaki, which shows a curve C representing a

standard UCR/BP characteristic curve, a correction curve C_1 representing a shift in the reproduce color towards the chromatic side with respect to the standard characteristic C , and a correction curve C_2 , which represents a shift in the reproduce color towards the achromatic side with respect to the standard characteristic C .

In addition, Fig. 10 of Kouzaki shows a Chromaticity Judging Section 97, which quantitatively measures chromaticity from the RGB image data after the shading correction, so as to cause UCR/BP correction data stored in a UCR/BP control ROM 98 to be provided to the Black Correction Unit 84 to cause a correction in chromaticity in the reproduce image.

With respect to amended Claim 1, Kouzaki fails to teach or suggest “converting, after the correcting step, said corrected input color image signal produced in the correcting step into an achromatic color image signal when it is determined in said determining step that the input color image signal represents achromatic color,” as recited in amended Claim 1. There is no mention or suggestion anywhere in Kouzaki that after the Achromatic/Chromatic Color Judging Section 95 has determined that the RGB color image data received from the Shading Correcting Section 82 to be achromatic (i.e. $R=G=B$) and corresponding UCR/BP correction data stored in the UCR/BP control ROM 96 is provided to the Black Generating Section 84, which provides color correction data C^1 , M^1 , Y^1 , Bk^1 to the Color Correcting Section 85, that there is an additional converting step for making the corrected color image data represents achromatic color print data. Nor is there any mention or suggestion in Kouzaki of using grey compensation in color matching, as between the image data and the print data. Therefore, amended Claim 1 is patentable over Kouzaki, whether taken alone or in combination with any other reference or references of record.

Amended Claims 2-7 and 10-12 each depend, directly or indirectly, from amended Claim and is, therefore, patentable over Kouzaki for the same reasons as given above for the patentability of amended Claim 1 over that reference.

With respect to amended Claim 4, Kouzaki also does not teach or suggest “wherein, when the input color image signal, which depends on the input-side observation condition, is determined in the determining step to represent achromatic color, the achromatic color image signal produced in the converting step by converting the corrected input color image signal produced in the correcting step, is an achromatic color signal according to a standard white point of output side observation light,” as recited in amended Claim 4. As already point out above, Kouzaki does not disclose or suggest converting corrected color image data into achromatic color image data. Therefore, this recitation in amended Claim 4 makes the claim further patentably distinguishable over Kouzaki.

With respect to amended Claim 5, Kouzaki also does not teach or suggest “further comprising a step of converting a device-dependent input color image signal into a device-independent input color image signal based on an input profile,” as recited in amended Claim 5. There is no mention or suggestion in Kouzaki of converting an input color image data, such as the CCD color sensor signal after A/D conversion, into color image data which is independent of the characteristics of the input device, such as the CCD sensor 5 and the A/D converting section 81. Kouzaki does not disclose or suggest anything corresponding to “an input profile,” on which such conversion may be based. Moreover, Kouzaki also fails to teach or suggest “wherein whether or not said correcting step is executed depends on information in the input profile,” as further recited in amended Claim

5. There is no mention or suggestion in Kouzaki of storing any information that determines whether or not correction of the input image data takes place.

Amended Claim 8 is an apparatus claim counterpart of amended method Claim 1, which has similar recitations to those of its counterpart method claim. Accordingly, amended Claim 8 is patentable over Kouzaki for the same reasons as explained above for the patentability of amended Claim 1 over that reference.

Amended Claim 9 is the recording medium claim counterpart of amended method Claim 1, and has recitations similar to those contained in its method claim counterpart. Accordingly, amended Claim 9 is patentable over Kouzaki for the same reasons as set forth above for the patentability of amended Claim 1 over that reference.

With respect to amended Claim 10, Kouzaki also fails to teach or suggest “obtaining a conversion condition for converting the input color image signal into a device-independent color space based on a standard white point of input-side light,” as recited in amended Claim 10. There is no mention or suggestion anywhere in Kouzaki of converting the input color image signal into a device-independent color space, or of using any conversion condition for such converting. Therefore, this recitation in amended Claim 10 makes the claim further patentably distinguishable over Kouzaki.

With respect to amended Claim 12, Kouzaki also fails to teach or suggest “wherein the correction according to the observation condition in said correcting step is a correction process which uses a color appearance model and which performs a non-linear correction,” as recited in amended Claim 12. There is no mention or suggestion in Kouzaki of using a color appearance or perception model, or a correction process which performs a non-linear correction.

With respect to amended Claim 16, Kouzaki does not teach or suggest the following recitations of that claim: “converting, based on an input file, an input-device-dependent color image signal to an input-device-independent color image signal, which is dependent on an input-observation condition”; “converting, using a conversion condition according to a standard white point of the input-side observation condition, the input-device-independent color image signal which is dependent on the input-observation condition to an input-device-independent color image signal composed of a red component, a green component, and a blue component, which is dependent on the input-side observation condition”; and “correcting, using a non-linear model according to the input-side observation condition and an output-side observation condition....” There is no disclose or suggestion in Kouzaki of converting an input-device-dependent color image data to an input-device-independent color image data. Kouzaki also does not mention or suggest any input-device-independent color image signal. Nor does Kouzaki disclose or suggest using a non-linear model according to the input-side observation condition and an output-side observation condition, and also does not disclose or suggest correcting, using such a non-linear model, the color image signal to generate a color image signal according to the output-side observation condition. For these reasons, if the restriction requirement is withdrawn amended Claim 16 is patentable over Kouzaki, whether taken alone or in combination with any other prior art of record.

Amended Claim 17 depends from amended Claim 16 and is, therefore, patentable over Kouzaki for the same reasons as set forth above fore the patentability of amended Claim 16 over the reference, if the restriction requirement is withdrawn. In addition, Kouzaki also does not teach or suggest “wherein, whether or not to execute said

correcting step to generate, according to the out-put side observation condition, a color image signal which represents achromatic color, depends on information acquired from the input profile and the output profile,” as recited in amended Claim 17. Kouzaki does not mention or suggest any correcting step which depends on information acquired from anything corresponding to “an input profile” or “an output profile.” Accordingly, if the restriction requirement is withdrawn, this recitation in amended Claim 17 makes the claim further patentably distinguishable over Kouzaki.

Amended Claim 18 is a recording medium claim counterpart of amended method Claim 16, and contains recitations very similar to those contained in its counterpart method claim. Therefore, amended Claim 18 is patentable over Kouzaki for the same reasons as set forth above for the patentability of amended Claim 16 over that reference, if the restriction requirement is withdrawn.

Applicant has carefully considered U.S. Patent No. 5, 239,370 to Yamaguchi, which has been cited by the Examiner but not relied on in rejecting any of applicant’s claims. Applicant earnestly believed that each of Claims 1-12 and 16-18 is patentable over Yamaguchi ‘370; whether taken singly or in combination with any other prior art of record.

For all of the above reasons, amended Claims 1-12 are each patentable over the prior art of record, and if the restriction requirement is withdrawn, amended Claims 16-18 are also each patentable over such prior art.

In light of the foregoing, applicant respectfully request withdrawal of the restriction requirement, allowance of Claims 1-12 and 16-18, as amended , and the passage of the present application to issue.

Respectfully submitted,


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